



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,622	01/06/2006	Vesselin Nikolov Peshlov	006681.00048	1769
22907 7590 02/12/2007 BANNER & WITCOFF 1001 G STREET N W SUITE 1100 WASHINGTON, DC 20001			EXAMINER DUONG, DIEU HIEN	
			ART UNIT 2821	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			02/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/563,622

Applicant(s)

PESHLOV ET AL.

Examiner

Dieu Hien T. Duong

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/06/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>01/06/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Preliminary Amendment filed on January 06, 2006 is acknowledged.

Specification

1. The abstract of the disclosure is objected to because of the reasons set forth below:

The term "comprising" should not be used in the abstraction.

Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 1 is objected to because of the following informalities:

In claim 1:

Line 3, "aperature" should be - - aperture - -

Line 4, "the plates" should be - - the grounded metal plates - -

Lines 8-9, "the grounded plates" should be - -grounded metal plate- -

Lines 9-10, "a plurality of antenna packages" should be - - an antenna package - -

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 recites the limitation "the antenna output" in line 15. There is insufficient antecedent basis for this limitation in the claim. Examiner cannot determine whether the antenna output is an output of antenna package or output of antenna feed mechanisms.

Art Unit: 2821

5. Claim 9 recites the limitation "the metal plates" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. Examiner cannot determine whether there are one metal plate (claim 1, line 8) or plurality of metal plates in the apparatus.

6. Claims 1- 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, line 15, the phrase "the antenna output" is unclear. It is not clear that the antenna output is an output of the antenna package or output of antenna feed mechanisms. Also, specification does mention the same. For examining purpose, it is interpreted as "output of antenna package".

Regarding claim 3, the phrase "pairs of them" in line 2 is unclear. It is not clear that the term "them" stands for what. For examining for purpose, it is interpreted as "pairs of sub-array antenna feed mechanisms".

Regarding claim 3, the phrase "forming one quarter" in line 3 is unclear. It is not clear what it is meant by one quarter of the antenna. Also, specification does mention the same.

Regarding claim 3, the phrase "the antenna" is unclear. It is not clear that the antenna is an antenna feed mechanism, antenna package.

Regarding claim 4, the phrase "neighboring antenna quarters" is unclear. It is not clear what it is meant by neighboring antenna quarters. Also, specification does mention the same.

Regarding claim 8, the phrase "the radiating elements" is unclear. It is not clear that the radiating elements are elements in claims 6 and 7 or radiating elements in line 13 of claim 1 or apertures in the grounded metal plates. For examining purpose, it is interpreted as "apertures".

Regarding claim 9, the phrase "one of the metal plates" is unclear. It is not clear that the metal plates are the plurality of metal plates or grounded metal plates or both.

Claims 2 and 5-7 are rejected for depending on claim 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothe et al. (US 6,456,241 B1) in view of Guler et al. (US 6,028,562).

Regarding claim 1, as best understood, Figures 1, 3, 5 and 13 of Rothe disclose an apparatus comprising: a plurality of grounded metal plates 3, 5 each with plurality of apertures 6 arranged about as a matrix of columns and rows; a plurality of antenna feed mechanisms 1, 2 disposed between the grounded metal plates 3, 5; a plurality of excitation probes 16 about aligned with the apertures 6 for forming antenna radiating elements; a metal plate 12 disposed adjacent the grounded plates 3, 5 forming an antenna package containing two orthogonal polarizations; the antenna feed

Art Unit: 2821

mechanisms 1, 2 being arranged as sub-arrays and the output of antenna package being connected to a Low Noise Block 41.

Rothe does not explicitly mention the antenna package further including an active layer providing amplification of the received signal and being coupled with the antenna radiating elements through a combining block.

Figure 1 of Guler discloses the antenna package further including an active layer 20 providing amplification of the received signal and being coupled with the antenna radiating elements through a combining block 24.

It would have obvious to one having ordinary skill in the art at the time the invention was made to modify Rothe antenna with a an active layer providing amplification of the received signal and being coupled with the antenna radiating elements through a combining block, as taught by Guler, doing so would amplify very weak received signals captured by the antenna.

Regarding claim 2, as applied to claim 1, Figure 1 and col. 6, lines 6-22 of Rothe disclose insulating layers 7, 9, 11 including a low-loss dielectric material disposed between the grounded metal plates 3, 5 and the antenna feed mechanisms 1, 2.

Regarding claim 3, as applied to claim 1, Figure 3 of Rothe discloses the antenna feed mechanisms being divided to sixteen sub-array antenna feed mechanisms.

Regarding claim 4, as applied to claim 3, Figure 3 and col. 5, lines 39-47 of Rothe disclose antenna feed mechanisms being rotated at 90 degrees angle to each other.

Regarding claim 5, as applied to claim 1, Figure 7 and col. 7, lines 54-55 of Rothe disclose the antenna feed mechanism including a central conductor of a strip line and a metal sheet.

Rothe does not disclose metal sheet with a thickness 0.1 to 0.3 mm using a thin metal sheet etching. However, It would have been an obvious matter of design choice to have metal sheet with a thickness 0.1 to 0.3 mm using a thin metal sheet etching since such a modification would have involved a mere selection in the thickness and the method to form a metal sheet. A selection in thickness and method to form a metal sheet is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 6, as applied to claim 5, Figures 5-7 of Rothe disclose the metal sheet forming support frames and elements for mechanical connection 33, 33a.

Regarding claim 7, as applied to claim 6, Figures 5-7 and col. 5, lines 39-47 of Rothe disclose the elements for mechanical connection 33, 33a being accomplished as RF decoupling circuits.

Regarding claim 8, as applied to claim 9, Figure 9 of Rothe discloses the apertures of the grounded metal plates being an octagonal shape.

Rothe does not disclose apertures of the grounded metal plates with two parallel long sides and two short parallel sides, connecting each one of the corresponding ends of the long sides with the respective ends of each one of the short sides.

It would have been an obvious matter of design choice to have a difference in parallel sides of an octagonal shape since such a modification would have involved a

Art Unit: 2821

mere change in the shape. A change in shape is generally recognized as being within the level of ordinary skill in the art

Regarding claim 9, as applied to claim 1, Figure 11 of Rothe discloses one of the metal plates 3, 5, 12 including openings 45a and being thicker than the rest of the metal plates in the package.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu Hien T. Duong whose telephone number is 571-272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2821

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Art Unit 2821
DD



**HOANG V. NGUYEN
PRIMARY EXAMINER**